



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/089,722	07/09/2002	Alan Taylor	G0365.0354/P354	2689
7590 07/09/2004 Dickstein Shapiro Morin & Oshinsky 1177 Avenue of the Americas 41 St Floor New York, NY 10036-2714			EXAMINER TRAN, THAO T	
			ART UNIT 1711	PAPER NUMBER

DATE MAILED: 07/09/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

10/089,722

**Applicant(s)**

TAYLOR, ALAN

**Examiner**

Thao T. Tran

**Art Unit**

1711

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 20 May 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-3,5-8,10-18 and 20-23 is/are pending in the application.
- 4a) Of the above claim(s) 20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3,5-8,10-18 and 21-23 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Response to Amendment***

1. This is in response to the Amendments received on May 20, 2004.
2. Claims 1-3, 5-8, 10-18, and 20-23 are currently pending in this application. Claims 4, 9, and 19 have been canceled. Claims 21-23 have been newly added.
3. Claim 20 has been withdrawn from further consideration, as directed to a non-elected invention, as indicated in the prior Office action of January 15, 2004.

### ***Claim Objections***

4. Claims 1, 16, and 18 are objected to because of the following informalities: in each of the claim, "obtainable" should be changed to --obtained--. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

5. In view of the prior Office action of January 15, 2004, the rejection of claims 1-3, 5-8, 10-18, under 35 U.S.C. 112, second paragraph, has been withdrawn due to the Amendments made thereto.

### ***Claim Rejections - 35 USC § 102***

6. In view of the prior Office action of January 15, 2004, the rejection of claims 1-4, 7-8, and 16-18, under 35 U.S.C. 102(b) as being anticipated by Groth et al. (US Pat. 5,998,504), has been withdrawn due to the Amendments made thereto.

Art Unit: 1711

7. In view of the prior Office action of January 15, 2004, the rejection of claims 1-4 and 16-18, under 35 U.S.C. 102(e) as being anticipated by Fukushima et al. (US Pat. 6,306,502), has been withdrawn due to the Amendments made thereto.

***Claim Rejections - 35 USC § 103***

8. Claims 1-8, 11-18, and 21-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Groth et al. (US Pat. 5,998,504).

Groth teaches a coating on a substrate and a process of making, the process comprising applying to the substrate a coating composition; wherein the coating composition comprises a silica sol including colloidal silica, hydrolysable silanes, and alkoxysilyl-functional prepolymer (see col. 1, ln. 8-10, ln. 62 bridging col. 2, ln. 26; col. 3, ln. 15-19; col. 4, ln. 30-31).

In regards to claims 1-2, 16 and 18, Groth teaches the alkoxysilyl-functional prepolymer is first prepared (polymerization of the organic monomers) and then reacted with the silica sol containing the hydrolysable silanes in the presence of hydrochloric acid (see col. 6, ln. 41-52; col. 7, ln. 3-6, 15). Groth further teaches that to complete the reaction, the mixture may be stirred for a long time (see col. 7, ln. 16-17). Hence, the polymerization of the organic monomers is initiated prior to completion of the polymerization of the inorganic monomers.

Furthermore, in regards to claim 1 and 18, Groth does not teach hydrolyzing the first and second silanes to form two separate sols and then mixing the two sols together. However, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, that hydrolyzing the silanes separately and mixing them together would have worked equally well as hydrolyzing them together, and would have had the same effects. Moreover, Applicants

Art Unit: 1711

have not disclosed that hydrolyzing the monomers separately and then mixing them would have more advantages over hydrolyzing them together.

In regards to claim 3-4 and 7-8, Groth teaches the first and second hydrolysable silanes being tetraalkoxysilane and 3-(trimethoxysilyl)propyl methacrylate (see col. 4, ln. 58-59; col. 5, ln. 7).

In regards to claims 5-6 and 21, Groth teaches the hydrolysable silanes present in an amount of 25-95 mole % based on the total number of moles of starting components (see col. 4, ln. 54-56). However, Groth does not teach the ratio of the first to the second hydrolysable silanes.

However, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, that the amount of one silane with respect to the other silane would have been determined through routine experimentation, in order to optimize the effects that these inorganic monomers would have on the composition. This is because increasing the first silane would increase hardness and weather resistance of the cured coating; whereas increasing the second silane would increase polymerization between the inorganic sol and the organic component in the composition, and therefore, would increase adhesion of the coating to the substrate. Moreover, Applicants have not disclosed the criticality of using these specific ratios. See MPEP 2144.05, section IIA.

In regards to claim 11, Groth teaches the organic component is added into the inorganic sol in liquid (see col. 6, ln. 63).

In regards to claims 12-15, Groth teaches the organic species being polyisocyanates and isocyanate-reactive chain extender; the substrate thermoplastic (see col. 7, ln. 30-36).

Art Unit: 1711

In regards to claim 17, although Groth does not specifically disclose that the coating is transparent, since Groth teaches the same coating composition, Groth's coating would inherently have the same properties, such as transparency, as the present invention.

In regards to claims 22-23, Groth teaches the polymerizable organic species are isocyanate and polyols (see col. 6, ln. 6-13), and coated with a decorative finish (lacquer) (see abstract).

9. Claims 1-3, 5-8, 10-18, and 21-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fukushima et al. (US Pat. 6,306,502).

Fukushima teaches a coating on a substrate and a process of making, the process comprising applying to the substrate a coating composition; wherein the coating composition comprises an inorganic sol A (UV curable silicone), polymerizable organic species (monomer mixture) B, and a photo-polymerization initiator C (see col. 3, ln. 10-62). Fukushima further teaches the inorganic sol A obtained by hydrolyzing particulate colloidal silica with at least one hydrolysable inorganic monomer precursor (alkoxysilane compound) (see col. 5, ln. 55 bridging col. 6, ln. 3); the organic species including poly[(meth)acryloyloxyalkyl] isocyanate and a urethane poly(meth)acrylate (see col. 3, ln. 33-53).

In regards to claims 1 and 16, Fukushima teaches the formation of the inorganic sol A is carried out in a total of 9 hours (see Synthetic Example 1) before mixing with the organic monomers B and the photo-polymerization initiator C, which appears to read on the instant claim. Since, the polymerization of the inorganic sol A occurs over months or years to complete, a reaction carried out in 9 hours would give an incomplete polymerization. Hence, the

Art Unit: 1711

polymerization of the organic monomers would have begun before the polymerization of the inorganic monomers has completed.

In regards to claims 2-4, 18, and 21, Fukushima teaches the inorganic sol A obtained by hydrolyzing particulate colloidal silica with at least one polymerizable alkoxysilane compound that is hydrolyzed in the presence of a mineral acid (hydrochloric acid) (see col. 4, ln. 4-7; col. 5, ln. 29-34).

Furthermore, in regards to claims 1 and 18, Fukushima does not teach hydrolyzing the first and second silanes to form two separate sols and then mixing the two sols together. However, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, that hydrolyzing the silanes separately and mixing them together would have worked equally well as hydrolyzing them together, and would have had the same effects. Moreover, Applicants have not disclosed that hydrolyzing the monomers separately and then mixing them would have more advantages over hydrolyzing them together.

In regards to claims 5-6, Fukushima does not teach a specific ratio of the first and the second silanes. However, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, that the amount of one silane with respect to the other silane would have been determined through routine experimentation, in order to optimize the effects that these inorganic monomers would have on the composition. This is because increasing the first silane would increase hardness and weather resistance of the cured coating; whereas increasing the second silane would increase polymerization between the inorganic sol and the organic component in the composition, and therefore, would increase adhesion of the coating to the

Art Unit: 1711

substrate. Moreover, Applicants have not disclosed the criticality of using these specific ratios.

See MPEP 2144.05, section IIA.

In regards to claim 10, Fukushima teaches the sol being formed for 9 hours before mixing with the organic species (see Synthetic Example 1), which appears to read on the instant claim.

In regards to claim 11, Fukushima teaches the organic species are added into the inorganic sol in liquid (see Synthetic Example 5 and Example 1).

In regards to claims 12-15, Fukushima teaches the organic species being urethane acrylate (thermosetting) (see abstract); the substrate thermoplastic or thermosetting resins (see col. 12, ln. 50-51).

In regards to claim 17, Fukushima teaches the coating is transparent (clear) (see col. 8, ln. 11-14).

In regards to claim 22, Fukushima teaches the polymerizable organic species being isocyanate and polyol (see col. 8, ln. 20-25).

In regards to claim 23, Fukushima teaches the use of the coating on architectural window panes (see col. 1, ln. 27). Hence, the substrate would inherently be pre-coated with a decorative finish.

10. Claims 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fukushima as applied to claims 1 and 4 above, and further in view of Vorse et al. (US Pat. 5,902,645).

Fukushima is as set forth in claims 1 and 4 above and incorporated herein.

Fukushima teaches the use of at least one silane, including 3-methacryloyloxypropyl trimethoxy silane and vinyl triethoxy silane, or the like (see col. 5, ln. 21-28). However, the reference does not teach the use of tetraethoxysilane.



Art Unit: 1711

Vorse teaches a coating composition including tetraethoxysilane and methacryloxypropylmethoxysilane (see col. 3, ln. 18-24). Vorse further teaches that the use of two silanes would increase stability of the composition and display more versatility in their usefulness (see sol. 3, ln. 7-10).

Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to have used tetraethoxysilane, as taught by Vorse, in the coating composition of Fukushima, for the purpose of enhancing stability of the composition, scratch resistance of the coating and the coating adhesion to the substrate.

#### ***Response to Arguments***

11. Applicant's election with traverse of Group I, claims 1-3, 5-8, 10-18, in the reply filed on May 20, 2004 is acknowledged. The traversal is on the ground(s) that the claims 1 and 18 as amended would not be anticipate or obvious over the reference. This is not found persuasive because the amended are still obvious over the reference of Fukushima as seen above. Therefore, as the recited features do not make a contribution over the prior art, unity of invention is lacking and restriction is appropriate.

The requirement is still deemed proper and is therefore made FINAL.

12. Applicant's arguments filed May 20, 2004 have been fully considered but they are not persuasive.

In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper statement of a conclusion and not a statement of fact, or that the criticality of using specific ratios would not constitute a prima facie bases for rejection, it must be

Art Unit: 1711

recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

### ***Conclusion***

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thao T. Tran whose telephone number is 571-272-1080. The examiner can normally be reached on Monday-Friday, from 8:30 a.m. - 5:00 p.m..

Art Unit: 1711

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on 571-272-1078. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

*Thao Tran*  
tt  
June 28, 2004

*Samuel A. Acquah*  
SAMUEL A. ACQUAH  
PRIMARY EXAMINER  
GROUP ~~120~~ 1750